April, 1956

THE CHEMIST

VOLUME XXXIII NUMBER 4

Dr. Roy P. Newton
Receives Honorary AIC Membership
(See Page 121)

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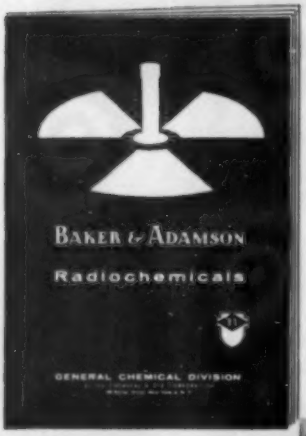

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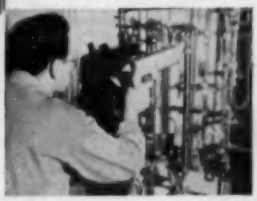

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AIC ANNUAL MEETING
BOSTON, MASS., MAY 10-11, 1956

Subject: Communication

Program and reservation forms are available on request to the Secretary, The American Institute of Chemists, 60 East 42nd St., New York 17, N.Y.

IN THIS ISSUE

(Departments curtailed or omitted in this issue for lack of space will be restored in later issues.)

TO COME IN MAY

May is the beginning of the fiscal year of The American Institute of Chemists, to be formally acknowledged at the Annual Meeting on May 10-11th, when the year's reports of Chapters, Officers and Committees are presented. New plans for the new fiscal year will germinate with the advancing Spring while established activities will grow more vigorous. THE CHEMIST will feature reports and progress reports. • The human interest story will be about the Ohio Award to Dr. Norbert A. Lange, F.A.I.C., who is vice president of Handbook Publishers, Inc., Sandusky, Ohio. • The second part of Dr. H. N. Alyea's lively discussion of "The Teacher" will consider the question, "Where to Get Ahead: In teaching or industry?"

TO SERVE YOU

EDITORIAL

Use Technical Manpower More Efficiently

Ed F. Degering, F.A.I.C.
26 Robinhood Road, Natick, Mass.

ONE hears and reads much about the technical manpower deficiency, which without doubt foreshadows a dismal future for the inventive and productive ingenuity which has ever been the vanguard in the rapid growth and development of the United States of America. What has been said and written pertains primarily to procedures whereby the output of scientific and technically trained personnel may be materially increased to provide adequately for our expanding economy. Little has been written about a more efficient use of the scientific and technical personnel which we do have at our disposal.

Reflecting on thirty years of experience and observation, I think that there are at least three areas in which important improvements should be made toward a more efficient utilization of available manpower. Specifically, one finds in any educational, research and/or development organization, (1) too many inhibition and frustration factors, (2) an inadequacy of technical aids and secretarial help, and (3) little or no provision for displaced personnel.

The scientist and technically trained man or woman is, in a sense, an artist. He has acquired certain technics in which he has considerable competency and his productivity increases with a decrease in inhibitions and frustrations. It is unnecessary to enumerate the thousand and one things which set up inhibitions and tend to throw the employee for a row of frustrations. Some may appear to be relatively minor but unfortunately the effect may be major. Steinmetz became frustrated when cooped up in an office or laboratory. General Electric recognized this and gave this scientist absolute freedom. That freedom paid dividends.

Dr. Blanchard of DePauw University, who had the distinction of graduating a continuing list of capable scientists, had a basic philosophy. He would endeavor (1) to clearly define the problem (2) consider the various possible approaches to the solution, and (3) then leave the student or staff member, as the case might be, free to proceed in his own way. One should always leave ample opportunity for the performance expression of the individual. I always admonished my graduate students to give first consideration to their working conditions; and I maintain that the first requisite to creative productivity is desirable working conditions. If a scientist really enjoys his work he will do well; if he does well he will enjoy his work. Perhaps every

institution should have a department of de-inhibition and de-frustration?

With reference to secretarial help and technical aids, it is my considered opinion that half of my professional life has been spent doing routine duties which could have been done equally well or better by a competent secretary or a technical aid. (This, too, is one of the frustrations!) By the Degering poll, approximately seventy-five per cent of the educators, scientists, and research and/or development personnel find themselves with inadequate help to do their tasks efficiently. I recall one instance where the study concerned improvement of yield. About two experiments were being completed per person per week. With the help of two technical aids, I was able to complete three experiments per day, and the yield was doubled months sooner than would have been possible otherwise. There is an old adage that one should not send a boy to do a man's work: perhaps we have been having men do boys' work!

The third area deals with displaced personnel. The displacement may arise from a variety of causes, but in most organizations there is little or no provision made for the utilization of this available pool of manpower. One specific displacement which is deserving of serious consideration is that of age.

> "When you look at the facts, man's best days are not over at 60. There are figures to show that the greatest achievements of man were consummated between his 60th and 70th years. Examining the histories of some 400 career men, the most notable and outstanding statesman, painters, warriors, poets, and writers of their time, indicates the decade of years between 60 and 70 contained 35 per cent of the world's greatest achievements; between 70 and 80, 23 per cent; and after 80, 8 per cent. In other words, 66 per cent of all great achievements accomplished by man were developed and given posterity after he had passed his 60th birthday."

With the number of oldsters on a marked increase, this displaced personnel becomes an increasingly serious problem, if we aim at efficient utilization of our technical manpower. Might not every organization do well to consider the establishment of a senior scientist category, open to qualified recruits from any organization? Obviously scientists in such groups would like to have a maximum of freedom and be relieved, in general, of adminstrative responsibility. They should be provided, moreover, with adequate secretarial help and technical aids to utilize their training and experience to the best advantage.

It seems apparent, therefore, that in the three areas considered here there is ample opportunity for increased efficiency of our available educators, scientists, and technical manpower. Without doubt there is need for additional educators, scientists, and technical manpower, but let us not overlook the equally urgent need for more effective utilization of the skills which we do have available.

Agricultural Research and its Effect on Industrial Progress

Dr. Roy C. Newton, Hon. AIC
Vice President in Charge of Research, Swift & Co., Union Stock Yards, Chicago 9, Ill.

(Presented when the author received Honorary AIC Membership at a meeting of the Chicago AIC Chapter, February 17, 1956.)

IT IS a human trait to ignore the importance of commonplace things and to magnify the importance of the unusual. A realization of this trait prompted my selection of the subject for this talk.

With industry spending something over two-billion dollars per year on research, one might wonder what possible effect the trifling amount spent on agricultural research could have on industrial growth and progress.

The total agricultural research budget in the U. S. Department of Agriculture and the various forty-eight States, amounted to something over one-billion dollars, but that was for the past ten years. In other words, industry is spending for research about twenty times as much as is agriculture. Perhaps the reason for this contrast is that industrial units are large, while agricultural units are, for the most part, too small to support independent programs of research. This explains, also, the fact that most of the agricultural research dollars are channelled through the Government, while industry spends its research money direct.

Some further comparisons which may be of interest are: That in 1940, industry was spending about twice the amount spent by agriculture compared to twenty times as much today; also, that agriculture is spending about twice as much in 1955 as in 1940, if we adjust the dollar to the same purchasing power. The figures are 42-million in 1940, and 78 and one-half million in 1955 of the same kind of dollars we had in 1940.

From this money spent for agricultural research there have come some rather remarkable results, not the least of which goes under the label of *Agricultural Surplus*. With a population of 165-million people, the capacity to produce food and fiber in abundance is truly one of our greatest blessings. To be sure the temporary imbalance of production and use is a problem which must be solved to prevent a hardship for many farmers. We are told that such an imbalance could throw our entire economy into a tail-spin. When I see the figures which show the market for industrial products to agriculture, which amounts to 12-billion dollars per year exclusive of furnishings, clothing, appliances, etc., I can well believe that a permanent solution to

this problem must be found—for the benefit of all of us.

The more fundamental point about this production capacity however, which makes it a blessing, is that we have food and fiber for the growing population and this in spite of the migration of agricultural workers to the city.

We don't often think of the technical revolution in agriculture as having a direct bearing upon our own activities. Perhaps we should ask ourselves:

What is it worth to the American householder to know with certainty that next winter's food supply will be available at all times no farther than the corner store and market?

We could answer this question this way:

It is the assurance of this which makes us free to select our position in life, whether in industry, government, teaching, or the professions. How much medical attention would we have, for example, if doctors and the students in training to be doctors were compelled to raise their own food for fear that it would not be available?

The Agricultural Research Service, under Dr. Byron Shaw, has analyzed the agricultural status of our nation and the part which scientific research has played, and must play, better than anyone else that I know about. His findings are not well enough known. I shall use here some interesting material from his publications.

I assume everyone is in agreement that the mode of life which we have and which our grandparents did not have is good for us. We can all think of some exceptions, but I shall not go into those:

These improvements in our standard of living have been brought about by two things. First, the degree of freedom which our citizens have retained for themselves in our form of government. and second, a handful of men.

About that "handful of men", it may be 10,000 or 100,000, or perhaps over 500,000, but whatever the number, it is certainly a small percentage of the people who have lived in this country during the past 200 years.

Our progress is primarily the result of this small group. It is their application of science and technology which has transformed our industry and our agriculture and given us the increased efficiency required to shorten our work week and to provide the things we need in today's living standard. No trade association, no union movement, and no legislation could have brought these things about until our efficiency of production was first improved to make them possible. This increased efficiency is an achievement of science and technology which has taken place in an atmosphere of freedom.

Let us look more specifically at some of these achievements in agri-

culture. In our colonial days, nine out of ten people were required to produce the food and fiber needed to sustain the population. By 1904, one agricultural worker could produce enough for seven people; in 1940, one for eleven people, and today one farm worker produces for himself and seventeen others.

Now some will say that this is an unfair comparison because: first, many services which were formerly provided on the farm are now performed in industry, and second, that much of the increased efficiency of agriculture has resulted from the tools provided by industry. A more complete analysis, however, will show that this argument destroys itself. In the first place, most of the services provided by industry today on our food and fiber are services which we did not have and our economy could not afford in colonial days. For example, the packaging of cereals in individual servings.

In the second place, the development of tools to increase the efficiency of agricultural production began on the farm and people thus released from agricultural production became the agricultural implement industry.

We are all proud of the industrial growth of our nation. I ask you where the industrial workers could have come from if they had not been released from agricultural work by greater efficiency on the farm? Who would make for us all the gadgets which we think we must have if nine out of ten of us were still on the farm?

The output per man hour in industry has increased likewise. How else could the work week have been reduced from 60 hours to 40 hours without the increased efficiency which technology has given us? How could we have abolished child labor? Who would have been available for the professions or to man the hospitals and the transportation systems? Production efficiencies had of necessity *to come first* and the first of these was on the farm.

Now, where do we go from here with the application of science to agriculture? We can no longer draw on agriculture for industrial workers. With only about ten per cent of our workers remaining in agriculture, it would not supply industry with any substantial increase if we took all of them. Of course that is impossible, so that industry must make its own improvements in efficiency from here on if we are to continue to raise our standard and, at the same time, decrease the work week. This I am sure will be done.

Does this mean that increased application of science to the problems of agriculture is no longer needed? To answer that question, let us look at the job ahead for agriculture.

Our population has increased at the rate of two-million per year during the last decade. No one knows whether it will continue to increase at this rate, but a most conservative

estimate places our population at 200-million in 1975. This alone will increase our needs for food and fiber by 25 per cent; five people at every table which now seats four.

Furthermore, the trend for better living has included a better diet, as well as all the gadgets we buy. A better diet means more eggs, more meat, and more dairy products. These are all foods which are calorically expensive to produce. If we feed our grain to livestock and eat the animal products, we lose in calories. A better knowledge of our nutritional requirements and a desire for better satisfaction in eating makes us want to continue this trend. I am sure we will continue to the extent of our agricultural capacity. This adds another ten per cent or more to our agricultural requirements.

These are not extrapolations into the distant future, but for 1975, a date most of us, we hope, will live to see.

Increased agricultural production has kept pace with our growing population in the past through two sources: (1) increased cropland, and (2) increased production per acre.

With respect to the future possibilities for increased cropland, I should like to quote from a statement by Agricultural Research Service, published in the *Congressional Record*, April 12, 1954:

> In 1950, we were using 462-million acres of cropland to supply food and fiber for domestic human consumption. This figure includes the actual productive cropland plus the equivalent cropland value of the pasture and grazing lands that were supporting our livestock.
>
> Assuming that the 1950 average levels of consumption and of per acre yields would remain unchanged, a total of 577-million acres of cropland would be needed to supply 190-million people as well in 1975 as 152-million were supplied in 1950.
>
> The difference between the 577-million needed and the 462-million then in use—or 115-million acres—would be met in part by new land brought into cultivation by 1975 through irrigation, drainage, and clearing. It was estimated that about 30-million acres might be added by these means. In addition, the continuing trend toward more complete mechanization in farming was sure to release more acres from producing feed for horses and mules. It was estimated that by 1975, 15-million acres more could be put into food production from this source. The increase in productive land, therefore, would be perhaps 45-million acres of cropland equivalent.
>
> Adding these 45-million acres to the 462-million used in 1950—and not making allowances for acreage losses due to soil deterioration and other causes—the prospective total of available land would be 507-million cropland acres.
>
> These estimates left a new production deficit of 70-million acres. It was clear the deficit would have to be overcome by other means than the expansion of agricultural acreage.

There are two possibilities for making up this deficit aside from lowering our dietary standard of living. The first is to prevent some of the present losses and, the second, is to increase yield per acre. These two overlap in many places because

many of our losses are losses of potential yield.

Again I turn to the Agricultural Research Service and to the survey on Agricultural Losses which they compiled a year ago. This bulletin makes interesting reading and spotlights many problems which offer business possibilities for industry.

These losses are from many sources and take place all the way from the growing crop in the field—through harvesting, storage, processing, distribution, and in the home right on the dinner plate. The total of these losses is estimated for all crops, pasture, and ranges, from all causes, to be 32 per cent of the total potential. The estimate for annual losses for livestock and poultry is 17 per cent of the total.

It will be seen from this that the losses alone if they could be prevented would more than cover the deficit for 1975. How much of this loss can be prevented is anyone's guess but certainly not all of it, and that which is saved will be the result of much further research as well as a sustained program of education.

Growing populations will be fed by scientific research and when we fail in that task we shall revert to what has been so aptly called the "Asiatic Diet."

Research will help to prevent loss of our soil. It will help to prevent losses of crops and livestock after they are produced. It will increase yields per acre.

All these will be badly needed in the foreseeable future. We must do the research now if we are to be ready.

Our bountiful supply today is a result of past research and our very subsistence at some date in the future will depend on today's research in the basic sciences of agriculture.

Newton — The Scientist

Harold S. Mitchell

Formerly Director of Laboratories, Swift & Company, 4115 Packers Ave., Chicago 9, Illinois

(Condensation of a talk presented when Dr. Newton received Honorary AIC Membership, Feb. 17, 1956, Chicago, Illinois.)

DR. R. C. Newton's professional achievements fall into two categories, first, as a research worker and administrator in the Research Division of Swift & Company; and, second, as a worker for the chemical profession and science in general.

He joined Swift's research staff in 1924. His early research was in the field of fats and oils, and rather extensive studies on emulsification led to the development of an outstanding and profitable line of mayonnaise and salad dressings. These products were

discontinued later, but not because of quality or lack of acceptance by the consumer.

Production of high quality lard was an important problem in the early days of the packing industry, and comparisons of this product with shortenings of vegetable origin led to critical examination into the reasons for differences in stability and functional properties. This resulted in the development by Newton and his collaborators of an internal chilling machine, much more satisfactory than the old type of chill rolls. More important, a study of super cooling of fats by means of the new equipment led to marked improvement of functional properties of the solidified fats when used in the production of baked goods. This internal chilling equipment was later applied to the solidification of margarine emulsions, with improved quality and, also, lower costs.

Another important development by Dr. Newton was the first commercially successful antioxidant for lard. In collaboration with Dr. Grettis of the Fat and Oil Research staff, he found that gum guaiac would not only extend the shelf life of lard, but that much of this increased resistance to rancidity carried through to the finished baked goods. The story of the program followed to obtain approval for the use in food of gum guaiac, a natural gum from a tropical tree, is interesting in view of recent discussions of the chemicals-in-foods problems. Dr. A. J. Carlson and co-workers at the University of Chicago studied the product extensively for four years, using rats, dogs, and humans, and concluded that the product was completely innocuous. These findings and a long continued, firm presentation of facts to interested people in Washington, led to acceptance of a development of great value, not only to the company but, also, to agriculture, because of the widened market for lard products. Subsequently, a number of other products have been approved for the same purpose. Newton, however, was the pioneer.

There were a large number of other important developments by R. C. Newton in the production of glue and gelatin, and other packing-house products. Eighty-one patents, foreign and domestic, have been issued in his name.

Dr. Newton's contribution to the company as administrator and executive are equally or more important than those in personal research. He became assistant chief chemist in 1930, and chief chemist two years later—a position he held until he was elected vice president in 1941. Under his leadership, there has been a steady gradual expansion of research facilities and personnel. He preferred the slower c o n s i s t e n t growth as against the large overnight expansion, so to speak, which very often of necessity changed downward just as quickly with changed eco-

nomic conditions. This policy of moderate expansion has proved to be most satisfactory and has paid dividends through good times and bad. In 1932 there were eight divisions in the research laboratory and a total personnel of sixty-nine. Today there is a total staff of 317 functioning in some forty-four divisions.

Dr. Newton can ask more searching questions in a research conference than anyone! This method of approach has led to a more careful study of all phases of a research project by staff members. At times, some of us have thought he should have been a lawyer rather than a scientist, but his approach was a sound one, even though at times most of us have been embarrassed when we found we did not have some of the most important facts about a problem.

He adheres to another policy that builds manpower. He insists on knowing the younger men in the research organization and on their knowing one another. One means of accomplishing this is a dinner and evening staff session each week at which the younger men are asked to describe their research and are encouraged to speak up in the discussions which accompany the description, and thus show their metal.

Dr. Newton has developed one of the most outstanding research laboratories in the food industry. Publication of scientific articles by the staff is encouraged as is participation in the activities of scientific societies. More important is the fact that the research staff, functioning always as a member of the Swift team, contributes in no small way to the profits of the company, which is the measure of the success of research.

Many of Dr. Newton's colleagues feel that what he has done for the chemical profession and the science equals or even surpasses his achievements within his own company. His unselfish service to chemical societies and scientific organizations has been outstanding. He is a founder member and past national president of the Institute of Food Technologists. He has served as chairman of the Chicago Section of the American Chemical Society, and is often referred to as the founding father of the National Chemical Exposition. He served as a national councilor and chairman of the Agricultural and Food Division of the ACS. He has been active in the Industrial Research Institute, the Board of Trustees of the George Washington Carver Foundation, the Nutrition Foundation, the American Meat Institute, and the National Research Council. These are but some of his major activities in the interest of scientific groups.

He has given considerable time, along with certain other scientific leaders in the food field, to the subject of chemicals in foods. This group, after long discussion of a

controversial subject, arrived at a set of principles which should be of great value to Congress in its effort to protect the consuming public from food additives of questionable wholesomeness.

His latest committee assignment is that of chairman of the Civil Defense Foods Advisory Committee, set up by the National Academy of Sciences, National Research Council. This group is to study the vulnerability of the food processing and warehousing industries to open attack by sabotage, by biological, chemical or radiological agents. Another concern of the committee is possible methods and facilities for decontaminating food plants, equipment, and products in a civil defense emergency. I am certain that the report of this committee, coming from the efforts of capable and willing members with Newton as chairman, will be of extreme importance in planning for what might be ahead of us.

For many years, Dr. Newton has felt that the pace of basic research needed to be accelerated. He has noted with considerable alarm that the storehouses of fundamental scientific knowledge are being used faster than they are being replenished. As is quite often the case in industrial research, his own group is not able to carry on an extensive continued program of basic research largely because of the pressure of day-to-day problems of importance to the business. In 1941, he outlined to the directors of Swift & Company his ideas as to industry's responsibility in assisting the accumulation of fundamental knowledge from which would eventually come benefits, not only to industry but to agriculture and the consuming public. There was general agreement, and each year since 1941 Swift & Company has encouraged basic scientific research in agriculture and human nutrition by giving unrestricted grants-in-aid to universities and colleges throughout the country. Up to this year approximately 400 grants, totaling over two and one-half million dollars, have been made to about seventy-five institutions . . .

It is inevitable that major accomplishments by a person are recognized by those in the field. That is true in Newton's case.

In 1947 he was designated as one of the "ten ablest chemists or chemical engineers" in the field of industrial and engineering chemistry, in a poll conducted by the *Chemical Bulletin* of the Chicago Section of the American Chemical Society.

In 1948 he was awarded an Agricultural Alumni Certificate of Distinction by Purdue University. In that same year he was given the Honor Scroll of the Chicago Chapter of THE AMERICAN INSTITUTE OF CHEMISTS.

He received the Nicholas Appert Award of the Chicago Chapter of

the Institute of Food Technologists in 1949 for outstanding achievements in food technology.

In 1952 the Industrial Research Institute gave him its medal for "vision in seeing the possibilities of industrial research in the meat packing industry; courage, persistence and broad understanding in building a research organization in his own company to make industrial research effective toward achieving these possibilities; and for the inspiring example of a successful research executive who has always been ready with aid to science and scientists."

Purdue University also honored him in 1952 at the One Hundredth Commencement by conferring on him the honorary degree of Doctor of Science.

Dr. Newton made an address at Cornell University in 1948, and I quote from it:

"A great leader, whether he be industrial, social, political, or academic, will be characterized by several qualities, which, when boiled down to fundamentals may be classified in these simple words: (a) The ability to think clearly and objectively. (b) Devotion to principles. (c) Desire to be of service to his fellow man. (d) The ability to inspire others. (e) A determined will or strength of character."

Roy Newton's record of achievements and my own observations over a period of many years convince me that he practices what he preaches. If I were advising youngsters asking for guidance in the chemical profession, I would unhesitatingly mention his name as worthy of emulation in every respect.

Newton — The Man

Dr. G. M. Dack

Professor of Microbiology; Director, Food Research Institute, The University of Chicago, Chicago, Illinois

(Excerpts from a talk given when Dr. R. C. Newton received Honorary AIC Membership, Feb. 17, 1956)

ROY Chester Newton is no ordinary man . . . He was born May 8, 1896, on a farm which his father homesteaded near El Reno, Oklahoma. From babyhood, he was endowed with more than the energy and cruising radius of the ordinary child . . . Later the family moved to a farm near Walters, Oklahoma, near an Indian encampment, where Roy learned a bit of the Indian language.

Roy was interested in chemistry before leaving high school and he attended Oklahoma Agricultural and

Mechanical College. With his wealth of physical energy, his extra-curricular activities in football, military drill, and wrestling were not neglected. Summers Roy worked in the harvest fields taking care of hay and wheat crops. Later while still in college, Roy decided one summer to sell books on veterinary medicine to farmers in Western Oklahoma and Kansas. Unfortunately a severe drouth hit the country that summer which forced the farmers to cancel their orders. The prodigal son returned home less than empty handed! . . .

The war years came, 1917-19, and Roy left college and entered the Army at Fort Logan H. Roots, Arkansas, where he received the commission of second lieutenant. In June, 1918, he went to Europe and was assigned to Company D, 23rd regiment, Infantry, which was in the second division with the Marines. On the Champagne front in an engagement on Oct. 3, 1918, he was injured. He received the French Croix de Guerre with star, and the following citation: "During the offensive operations of October 3-9, 1918, near St. Etienne a Arnes, he displayed extraordinary heroism and coolness in leading his section into action. Was wounded."

When Roy returned to civilian life a newspaper stated: "He expects to finish his college course in chemistry and to engage in chemical work in connection with the oil industry . . . " Undoubtedly this reference to oil did not apply to the fats and oils of the meat packing industry in which Dr. Newton subsequently has made major contributions.

He finished his work at Oklahoma Agricultural and Mechanical College with a Bachelor's degree in 1921. He then received the Ph.D. in chemistry at the University of Chicago in 1924.

Dr. Newton has a great love for the farm and the open spaces. His farm home is at Three Rivers, Michigan. He enjoys getting home week ends, and being out of doors regenerating his physical plant for the rigors of his next week's work in industry. He negotiates the distance from Chicago to Three Rivers by piloting his own plane.

New ideas are always welcomed by Dr. Newton. He was one of the first to further studies on radiation of food. He is deeply interested in basic research even though practical applications may be far in the future. He has pioneered in encouraging young men who have ideas.

Much credit for Dr. Newton, the man, belongs to his good wife. She is a constant source of encouragement and inspiration to her husband.

As stated, Roy Chester Newton is no ordinary man. He will be long remembered for his love of his fellow man, his boyish enthusiasm, his quest for truth, his boundless energy, and his robust health. His ability to meet adversity and to accept responsibility

Dr. Newton, Dr. Lloyd A. Hall, and on far right, Dr. H. S. Bloch

for errors in judgment of those under his direction characterize him as a leader of men. These virtues, together with his sound judgment and objective reasoning, have carried him to the top. The impact and influence which his life has had on the many people who have been privileged to work with him will long endure. His life is an outstanding example of dynamic power harnessed for doing good.

Presentation to Dr. Newton

HONORARY membership in THE AMERICAN INSTITUTE OF CHEMISTS was presented to Dr. Roy C. Newton, vice president of research of Swift & Co., at a meeting of the Chicago AIC Chapter held February 17, 1956, in Chicago, Ill.

Dr. Gail Dack, head, Department of Bacteriology of the University of Chicago, spoke on "Newton, the Man." Harold S. Mitchell, formerly director of Swift's Laboratories, discussed "Newton, the Scientist."

The Honorary Membership certificate was presented by the toastmaster, Dr. Lloyd A. Hall, director of research of Griffith Laboratories. Dr. Newton responded with an address on "The Effect of Agricultural Research on Industrial Growth."

(See preceding pages for the papers presented at this meeting.)

The citation on the Honorary Membership Certificate reads:

To

Roy Chester Newton

Brilliant leader in food technology and research that has contributed notably to the advance of agriculture, science and industry; Courageous champion of the consumer whose interests he has consistently supported with the firm conviction that what is good for the public is good for the chemical industry and profession; Brave soldier; Loyal and patriotic citizen; Warm friend of chemists and chemistry.

Retired: Dr. Edward R. Weidlein, Hon. AIC, president of Mellon Institute, Pittsburgh, Pa., on March 31st. He will remain on the Board of Trustees of the Institute and in an advisory capacity. Following his retirement, he is spending several months in Europe on a Federal Government mission. He was honored at a testimonial dinner by members of Mellon Institute, at the Schenley Park Hotel, Pittsburgh, on March 20th.

Honored: With a scroll for twenty-five years of service, by the New York University Alumni Association, at a dinner on March 15th in New York, N.Y., Dr. Edward J. Durham, F.A.I.C., associate professor of chemistry. He is a specialist in instrumental analysis.

New Position: For Dr. E. H. Northey, F.A.I.C., who on March first became technical director of Davis & Geck, Inc., Danbury, Conn. He was formerly with American Cyanamid Company.

Radioisotopes: Will revolutionize our lives by producing better foods, drugs and clothing, according to Dr. E. M. Weber, F.A.I.C., director of biochemical research for Chas. Pfizer & Co., Inc. "In 1950, only 100 industrial companies were using radioisotopes and now the number is 1250."

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Report to Chemists and Chemical Engineers on Scientific Manpower

(A report of the AIC Committee on Manpower)

THE AIC Manpower Committee has been actively following the many aspects of the manpower problem and its members are expending much effort in this area in their own companies and in other organizations. It feels that its chief responsibility is to keep the AIC membership informed on the major developments.

There are two groups paid by industry to concentrate on this subject. One is the Engineering Manpower Commission of the Engineers Joint Council and the other is the Scientific Manpower Commission. They are under the full-time leadership of two of the best informed men on the subject, William T. Cavanaugh and Howard A. Meyerhoff. The work of these groups is covered by the Engineering and Scientific Manpower *Newsletter*. This *Newsletter*, issued frequently and supported by industrial and technical society contributions, brings up-to-date information on manpower both from the military and industrial point of view. (Readers of THE CHEMIST may receive the *Newsletter* free by writing to William T. Cavanaugh, Secretary, Engineering Manpower Commission, 29 W. 39th St., New York 18, N. Y.)

The Engineering Manpower Commission held a special discussion on the manpower situation, January 26-27, 1956, under the auspices of the Engineering Joint Council at its General Assembly, where representatives of the federal government, universities, and industry spoke. Several areas of the manpower situation which were discussed will be reported here.

Brainpower

"Brainpower — Our Greatest Asset," was the subject of Frank H. Bowles, director of the College Entrance Examination Board. He stated that the problem of the availability of brainpower for the maintenance of our economic and social organization is really two separate problems closely related. "The first has to do with the present operation of our educational system which seems to be failing to hold, to the point of maximum return, a very large number of able individuals. This immediate problem is to be closely followed by that related to the ability of our educational system to double its capacity within the next decade. Together these problems are both related to the question which concerns us today as to whether our schools and colleges can produce in the form of workers, technicians, engineers, scientists and administrators, the brainpower we must have to keep our economic and social organization going."

"Hence," he stated, " I think that the only common sense answer, based

merely on a comparison of announced plans, is that education will not expand commensurately with industry and commerce unless steps are taken which are not now in process of planning. Now, if this is the answer, then . . . it has important implications for further expansion of our economy for there is a direct relationship between expansion of education, and expansion of the economy."

Mr. Bowles supported this thesis by citing the two functions that education has performed during the last fifty years. It has removed a larger and larger proportion of school age youth from the labor force to be returned at some later date as far more productive persons. He pointed out that this process is getting to a point of diminishing returns because the reserve, those capable people of educational age not in school, is far smaller than ever before. He presented a statistical analysis which indicated that our reserve of brainpower potential in terms of absolute numbers as well as percentages is running short. "It is this fact that we are running short of brainpower that has aroused our human resources that have hitherto been unregarded."

He showed the results of a study of undeveloped brainpower recently completed by the College Entrance Board which indicated that an ever-increasing large amount of efforts of various kinds will be needed to encourage the education of this ever-diminishing potential group. His conclusions were: (1) Our brainpower group is not large. (2) The number of the high-ability students who graduate from college cannot under present circumstances be increased greatly. "From these facts it is clear enough that no great quantity of salvation is to be expected from efforts to stimulate the increase in the output of educated brainpower through such devices as scholarship programs. There will be some results, but they will not be startling nor, except for huge sums of money, numerically important.

There is little relief, he indicated, to be counted on in the near future in the great wave of attendance ahead. He cited the problems involved in retaining an increasing proportion of students at the same time that sheer numbers will cause declines probably in our performance and standards. The youngest war babies are still six years away from college degrees and the first large group are ten years away. Among hopeful signs, he cited the increased interest in mathematics, science and engineering. This does not solve the problems of numbers but it will help to restore balance that has been lost. Also there is reason to hope that the current concern with the full use of our human resources will lead to improvements in selection techniques.

The Reserve Program

Albert Kay, reporting for Carter L. Burgess, assistant secretary of defense, manpower and personnel, in

his talk emphasized the realism of President Eisenhower's Reserve Program in the light of present conditions and future dangers.

He cited the passage by Congress of almost all the Presidential Reserve Recommendations in 1955, stating that provision has been made for strengthening our reserve forces to meet the needs of these uncertain times. He pointed out that the program provides greater flexibility of choice for young people and a more equitable sharing of the military obligation, and he emphasized that "the total program will minimize the impact of military manpower requirements on the supporting civil economy, and will generally give industry a greater degree of certainty and predictability about their operations now and in the event of an unwanted general mobilization."

Turning specifically to the problem of specialized manpower in the Reserve program, he outlined the specific provisions of the law and subsequent Executive Orders, which are intended to allow engineers and scientists and other persons with critical skills to make their highest contribution in the defense supporting economy.

He stated that the reserve screening process will insure "that persons with critical skills, who have an obligation to serve in the Ready Reserve, are actually retained in the Ready Reserve only if requirements exist for their skills, or if they have an over-riding military specialty. Persons with critical civilian skills who are in excess of requirements are tranferred to the Standby Reserve. They are relieved of their training obligation, and are subject to call in the later phases of a general mobilization only after a determination of availability by the Selective Service System.

Mr. Kay continued, "Thus, an engineer not needed in the Ready Reserve in his occupation will be transferred to the Standby Reserve. The only exception would be the situation where the engineer is also a jet pilot or possesses some other critical military specialty. In that case, he would be retained in the Ready Reserve. All of this makes extremely good sense. It is based on the sound idea of a sensible balance betwen military and essential civilian requirements. In other words, we want to insure that we don't have in the Ready Reserve people who will not actually be available for immediate mobilization." Thus, a physicist or an engineer screened into the Standby Reserve would not be snapped up by the military on M-day. "Since the Standby Reserve is called at a later phase of mobilization, these people have an opportunity to be employed in defense industries and laboratories during the critical reconversion process. Whether they are eventually called into military service depends on their individual status and contribution at the time of call-up. If they are called,

the odds are that they will be used in their skills."

After describing the special six-month training program for persons with critical skills, meant to fill an immediate need, Mr. Kay emphasized the need for support of the entire Reserve Program. "The strengthened reserve programs provided by the Reserve Forces Act of 1955 are vital ingredients of national security. They provide the Ready Reserve Forces indispensably needed for immediate augmentation of the active forces in the event of an emergency. We need your support on all elements of the program. For, from a position of realistic and ready strength, we may win the peace without the necessity of having to win a war."

Although Mr. Kay's discussion seemed to cover the problem of the person with critical skills, and its probable solution, yet the actual wording of the regulations means that any man "required" or needed by the military will be kept in the Ready Reserve no matter how much he is required or needed by some essential civilian activity. There has been a complete refusal to set up an appeal board to decide specific cases. Industry, for example, has no redress in the case of individuals that it wishes to move from the Ready Reserve to the Standby Reserve from which they must be selectively recalled to active service.

The Use of Specialized Manpower

In a talk on "The Role of the Office of Defense Mobilization in the Development and Utilization of Specialized Manpower Including Scientists and Engineers," Brig. Gen. Carlton S. Dargusch, assistant director of ODM for Manpower, outlined programs under way in the ODM to fulfill its major mobilization responsibilities in this field. ODM is essentially a planning agency and is now determining how many scientists and engineers are needed and how to mobilize most effectively those required.

Gen. Dargusch emphasized ODM responsibility for plans to maintain the technological superiority of the United States. "There are those who believe that this phase of the conflict can be decisive and that the nations which achieve significant superiority in vital weapons systems will have, for practical purposes, won any future military struggle. For this reason, our major area of activity lies in the field of mobilizing scientists and engineers to give the United States and the free world the best possible chance of maintaining technological superiority in the foreseeable future."

"Specifically," he said, "we are studying the methods by which we may insure, through a coordinated and primarily private effort, the development of the required number and quality of scientists and engi-

neers needed, and expect to announce our plans soon. In this scientists and engineers will have a substantial part." As specific steps, he cited the implementation of Public Law 305 as it affects the military training and reserve obligation of scientists and enginers. ODM will review from time to time the operation of those parts of Public Law 305 having effects on the needed proper balance between civilian and military manpower requirements. Because of the unique nature of the current international situation, "The mobilization problems we face are largely new, and there must, therefore, be a complete reconsideration and re-examination of our mobilization position in all of its aspects."

"Since we can not . . . hope to match the Soviet and its satellites in numbers of men, we must, therefore, top them in the training, allocation and utilization of our specialized skills, such as scientists and engineers. If we are to ensure a strong and expanding civilian economy and maintain our technological superiority, we must . . . accord to the profession of teaching and to science and engineering appropriate recognition, and I believe that more people will be attracted to and stay in these fields if that is done. In the last analysis, the recognition of a job well done is just as important as pecuniary reward. To this end, I would second the suggestion of Director Arthur Fleming, of the ODM, that American enterprise, including the professional societies . . . establish immediately a fund of not less than one-million dollars annually to provide for honors and awards to a substantial number of individuals, each year, who have distinguished themselves in studies or in contributions to science and engineering of benefit to the nation. These honors . . . might be in five categories (1) High school students, for superior performance. (2) High school teachers, for outstanding contribution in teaching. (3) College and university students, for superior performance. (4) College and university teachers, for outstanding . . . teaching or research. (5) Scientists and engineers, for distinguished contributions in their fields."

Selective Service

Maj. Gen. Lewis B. Hershey, director of the Selective Service System, stated that the position of the Selective Service changed from time to time depending upon the military situation. Though some states are not

taking fathers or men over 26-years, this is not a definite policy. He indicated the following order for the selection of 1A's: (1) 19-26 non-fathers. (2) 19-26 fathers. (3) Over 26 fathers and non-fathers. (4) Those below 19, since the younger men cannot be taken if older men are available. When asked whether industry should continue to ask for the exemption of certain key technical personnel, he answered that if we were able to ask for deferment for this type of personnel in times of greater military need, we certainly should continue to do so today.

Better Use of Manpower

In the discussion on "Extending Engineering Manpower by Utilizing Balanced Teams of Engineers and Engineering Technicians," considerable emphasis was put on the use of more technical help to relieve the manpower shortage and the trained engineer. Some companies have established programs in this area with special regard to orientation and training. All of the speakers felt that this was an important phase of solving the technical manpower shortage.

The AIC Committee on Manpower felt that it was worthwhile to report the above effort and hopes it will be of interest to the members of the Institute.

—Dr. G. L. Royer, chairman
Drs. H. S. Bloch, E. Durham, N. A. Shepard and Mr. O.B.J. Fraser.

Established: An Industrial Relations Office by the Air Research and Development Command Laboratories. The new office emphasizes the securing of scientific and technical contributions from those organizations not previously ARDC contractors. It is headed by Warren L. Baker, Sun Building, Headquarters ARDC, Baltimore 3, Md.

The Teacher*

. . . busy as a bee
. . . poor as a churchmouse
. . . happy as a lark

IN the days of our forefathers, when their caravans of covered waggons rolled slowly across the Great American Plains, they came at last to the base of the Rocky Mountains. Here the trail divided. Some of the covered waggons turned northward to the fertile fields which were to become the States of Washington and Oregon where the abundant orchards of *apples* grow. The other covered waggons crossed the barren lands of Nevada to the lush valleys of California and *gold*. Today you young people are crossing the great plains of your scientific education—high school, college, and graduate school—and will come at last to that dividing of the trail which, too, leads on to apples or to gold; to teaching or to industry. And lest you fear I shall attempt any invidious comparison between teaching and industry, let me hasten to say that life in California is both pleasant and wholesome.

PART 1
HOW TO GET AHEAD

Before we talk about choosing our trail, let us review some of the rules of the road which guarantee us safe journey over either trail. How shall we get ahead?

Science is replete with lucky accidents. With Sir Alexander Fleming and his lucky discovery of *penicillium notatum* which opened up the field of antibiotics; with Alfred Nobel and with John Wesley Hyatt and their accidental discoveries which led to nitrocellulose explosives and plastics; with Henri Becquerel discovering, by chance, the phenomenon of radioactivity of a lump of pitchblende and thereby ushering in the age of atomic bombs and nuclear reactors. All of these were lucky accidents; but to young people, particularly, I would say that all had one characteristic in common: the scientist who made the lucky discovery had a prepared mind. As Pasteur well phrased it: *Chance favors the prepared mind.* So if you want to get ahead in the world, prepare your mind. Prepare it in several ways.

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*Presented by Dr. Hubert N. Alyea, Frick Chemical Laboratory, Princeton, N.J. at a joint meeting of the American Chemical Society, North Jersey Section, and The American Institute of Chemists, held in New Brunswick, N.J., on December 1, 1955, on the topic: *The Facts of Life for Chemists.*

First, prepare to be a *leader*. Work hard. The elevator to success is not running: Take the stairs. The scientist's work-house is a *labor*-atory. Recently at a commencement, the speaker, exhorting the young graduates, pronounced: "As I came through that door I saw on the plate the motto which all of you need in order to get ahead in this world." When the students shouted "PULL", he knew he had taken his motto from the wrong side of the door. A friend of mine, president of a large company, was being teased by his friends. "You were a lucky fellow. Your immediate superior died, and you took his place. Then you were transferred to another department where the foreman was jealous of you and pushed you up to get you out of his department. The next promotion came when your boss left the company; and now you are the president. What a lucky fellow!" "Yes," he retorted, "I was lucky. And I always found that I was luckiest when I was working the hardest."

Next you must have *imagination,* lots of it. In science we all guess, and we give Nobel Prizes to the best guessers. If you ask an ordinary college student, "What is the color of anhydrous blue vitriol," he will be hesitant to venture and answer, and may reply, "I don't know." But ask an imaginative student the same question and he reasons: "Anhydrous blue vitriol? Of course it isn't blue, or he wouldn't have asked me; also most of the chemicals on the laboratory shelves are white." So he tells the teacher, "Why, sir, it is white." And that's right, and he gets credit for supposedly knowing an answer which he guessed. Leaders are men who can guess the future of their company's business. They say that everybody who knows *how* will be employed, but that those who know *why* will be their employers. For the employer uses imagination, and extrapolates into the future. I tell my students in Princeton that to get ahead in this world you must keep your nose to the grindstone, but in doing so, remember to turn your head this way and that so that you sharpen your nose, otherwise you will grind it off. In other words. not only work hard, but work intelligently; use your imagination.

Finally have *confidence in yourself*. If you don't, nobody else will. I recall Dr. Whitmore of Penn State University saying what an inspiration it was to him to attend meetings of the American Chemical Society. There he could look up the ladder of success and see the big shots just one rung or so above him; and then he would think, "If I just scramble a bit I can catch *them* easily." But then he would look at the rungs below him, and see young fellows below scrambling to catch up to *him,* so he would think, "I must hurry or they will catch up to *me.*" One bit of confidence you need when you are doing a piece of research is the confidence that you are sure to discover something; that if you keep on working, eventually, within the next twenty years,

you will make an important discovery. There are enough undiscovered phenomena in the world to make this certain, perhaps during the first few months, perhaps not until the last few months of those twenty years, but sometime. This in an important difference between research and teaching: In teaching you have immediate return, and the satisfaction of seeing the efforts of your teaching at once; but in research, the thrill of discovery may be postponed for years. In research you need confidence in yourself, confidence that you will eventually make an important discovery.

In this connection you may feel hesitant about *talking in public,* as at chemistry seminars. This is normal. I used to be frightened when I first began to lecture. But eventually one's fright fades; you become so interested in getting ideas across to your students that you forget yourself entirely, and your nervousness vanishes. So if, at present, you are afraid to talk in public, this is no reason to dissuade you from becoming a teacher.

Next, prepare to be *human,* for your relations with your colleagues is a very human one, and involves much give-and-take in discussing your scientific ideas with them, and in accepting or rejecting their criticisms. Research today has become more and more team-play. You will have to find a champion of your scientific theories. Young Svante Arrhenius took his ideas of ions to his professors in Stockholm and Uppsala only to have them pronounce the theory of ions sheer nonsense. It wasn't until he found a champion for his ideas in Wilhelm Ostwald that Arrhenius could convince the world of his ionic theory. The same was true of Charles Darwin who was inarticulate and found Thomas Huxley his mouthpiece. For you must be able to translate your scientific ideas to others, to be human. This means that in addition to your technical training you should be taking courses in art, in literature, and in the social studies: These will help you to learn better how to communicate with people.

Finally, prepare to be an *expert.* Finish your German requirements in high school or early in college. Take all of the mathematics you can, even if you plan to be a biologist. Three of my classmates who are lawyers told me that if they were in college again they would take more mathematics, since it trained them to think clearly. Also take English, something which is often distasteful to scientists; at any rate put yourself on a diet of one scientific classic a month: H. G. Wells, "The War of the Worlds", "The Invisible Man"; A. Conan Doyle's "The Poison Belt," "The Hound of the Baskervilles", and Sherlock Holmes detective stories. These classics will interest you, but they will also unconsciously increase your vocabulary, making it fuller and more interesting in describing your researches.

The story is told of the plumber who came to fix a pipe in the celler, and who did so with a single tap on the pipe. He submitted a bill for $25. The husband was irate. "You say", he said to his wife, "that all he did was tap once on the pipe downstairs, and now he sends us a bill for $25.? Tell him to itemize his bill." At the end of the month the itemized bill arrived: "For tapping on pipe, $1.00. For knowing where to tap, $24.00" Yes, be prepared; know where to tap!

(Part II, Where to Get Ahead: In Teaching or in Industry? will appear in the May issue of THE CHEMIST.)

Announced: By Bernard R. Krashin, M.A.I.C., president of Colton Chemical Co., a division of Air Reduction Co., Inc., the removal of the general offices of Colton to 1747 Chester Ave., Cleveland 14, Ohio.

Retired: Harry P. Newton, F.A.I.C., from ARS, U. S. Department of Agriculture, Fort Detrick, Frederick, Md. His new address is P.O. Box 526, De Bary, Florida.

Scholarships: Offered by The Rayonier Foundation to outstanding high school graduates in the five counties, located in Georgia, Florida, and Washington State, where the chemical cellulose producer has plant operations. Each scholarship is in the amount of $750 per year for four-year college terms.

Thirtieth Anniversary: Of Dr. Bernard L. Oser's affiliation with the Food Research Laboratories, Inc., Long Island City 1, N.Y., was commemorated by the presentation to him of a book containing several hundred congratulatory messages from his friends and scientific associates, on January 18th. Dr Oser, F.A.I.C., is vice president and director of the Laboratories.

Honored: Dr. Carl Shipp Marvel, Hon. AIC, research professor, University of Illinois, with the Priestley Medal of the American Chemical Society, April 9th, at the Statler Hilton hotel, Dallas, Texas. The medal is presented to him for "outstanding services to chemistry," in recognition of his work in synthetic polymers. He received the AIC Gold Medal in May, 1955.

Moved: The main office of Laurence M. Marks & Co., members of the New York Stock Exchange, to 48 Wall Street, New York 5, N.Y. Dr. Alan H. Richardson, F.A.I.C., is a representative.

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L. T. Work, *Past President*

February Meeting

The 307th meeting of the National AIC Council was held February 8, 1956, at noon, at the Sheraton-Mayflower Hotel, Akron, Ohio. President Dinsmore presided. The following officers and councilors were present: J. Bjorksten, J. R. Bowman, R. P. Dinsmore, K. M. Herstein, F. A. Hessel, J. Kotrady, J. H. Nair, E. Ott, G. L. Royer, W. J. Sparks and L. T. Work. J. T. Blake, chairman of the Annual Meeting Committee; L. T. Eby, chairman of the Membership Committee; R. L. Moore, chairman of the New York Chapter; H. M. Olson, chairman-elect of the Ohio Chapter, and V. F. Kimball were present.

The Treasurer's report was accepted.

The Secretary's report showed 2798 active AIC members.

The following deaths were announced with deep regret: Dorah L. Burnell, Emeritus Fellow, on Dec. 31, 1955; Edward T. Ladd, Fellow and Charter Member, on December 24, 1955; Edward J. Reardon, Member, on Jan. 10, 1956, and Edward F. Snyder, Fellow, on November 19, 1955.

A letter from the Secretary of the Niagara Chapter was presented, inviting the AIC to hold its Annual Meeting in that area, in 1958 or 1959. It was referred to the appropriate committee.

Upon motion, it was decided to form a permanent planning committtee to determine the locations and dates of the Annual Meeting. This was referred to the Executive Committee to determine ways to set up such a committee.

A report by Benjamin Sweedler, chairman of the Committee on Constitutional Revision, recommended approval of the

Constitution of the Niagara Chapter. Upon motion, the Constitution was approved.

Dr. Royer reported concerning the Scientific Manpower situation. He stated that the Engineers Joint Council had held an excellent meeting recently on the subject. The Committee was encouraged to continue its activities and to keep AIC members informed of developments through The Chemist.

Dr. Eby, chairman of the Membership Committee, reported that the committee is having good success with its current drive, and that some of the new members who live in areas presently remote from Chapter areas might well be a starting point for new Chapters.

Dr. Royer, chairman of a special Committee to Consider the Objectives of the AIC, announced that the following are assisting him on this committee: Dr. L. T. Eby, Dr. Lloyd A. Hall, Dr. F. A. Hessel, Dr. H. W. Mackinney, and Dr. Roger Truesdail. He presented a progress report, emphasizing that the AIC can aid the professional status of chemists not only in general activities, but in assisting individual members whenever possible. Individuals should be given as much information as possible about the economic side of the profession and the psychological factors governing work drives. He discussed several phases of chemists' problems.

Mr. Herstein reported that the ACS and AIC are meeting jointly, February tenth, to discuss the employment of high school teachers in summer industrial positions. As a member of the committee to seek industrial positions for high school teachers, Mr. Herstein reported that twenty firms had pledged to employ high school teachers during this coming summer, in the New York area.

Mr. Kotrady announced that the Annual Student Medal Award Meeting of the New York Chapter will be held on April 26th. The Honor Scroll of the New York Chapter will be presented to Dr. C. N. Frey on June seventh.

Mr. Kotrady and Mr. Moore discussed the Group Health and Accident Insurance Plan now in effect in the New York Chapter. About one-sixth of the Chapter has signed up for this insurance. Mr. Kotrady was asked to report on the feasibility of a similar plan of national scope for the AIC.

Dr. Blake reported on the Annual meeting plans for 1956, and announced that Dr. Warren K. Lewis will be honorary chairman of this meeting. (The complete program of the Annual Meeting appears in the April CHEMIST.)

Mr. Kotrady reported as chairman of the Committee to Consider Student Medal Awards. The report was referred to the Executive Committee.

It was decided that the hotel headquarters for the 1957 Annual Meeting would be the Sheraton-Mayflower Hotel, Akron, Ohio, and the dates of May 15-17, 1957, were selected.

A motion of thanks was extended to President Dinsmore and the Goodyear Tire and Rubber Company for their fine hospitality in arranging this luncheon meeting of the Council and in making private plane transportation available to those of the Council coming from the New York area.

The following new members were elected:

FELLOWS

Aepli, Otto T.
Chief Chemist, Pennsylvania Salt Mfg. Co., 4655 Biddle Ave., Wyandotte, Michigan.

Blalock, William L.
Witco Chemical Co., 2601 E. Imperial Highway, Lynwood, Calif.

Brown, Lawrence E.
Chemist, Charge of Microanal Lab., Bureau of Agr. & Industrial Chemicals, Southern Utilization Res. Branch, 1100 Robert E. Lee Blvd., New Orleans, La.

Dalby, Gaston
Director of Research, Ward Baking Co., 376 Southern Blvd., New York 54, N.Y.

Dannenberg, Eli M.
Associate Director of Research, Godfrey L. Cabot, Inc., Research Labs., 38 Memorial Drive, Cambridge 42, Mass.

Day, Dr. Harry G.
Professor & Chairman, Dept. of Chemistry, Indiana University, Bloomington, Indiana.

Deitz, W. Robert
Analytical Supervisor, National Petro-Chemicals Corp., Box 109, Tuscola, Ill.

DeLoach, Dr. Will Scott
Head, Dept. of Chemistry, Catawba College, Salisbury, North Carolina.

Denko, Dr. Charles W.
Research Associate, Dept. of Medicine, Univ. of Chicago Clinics, 950 E. 59th St., Chicago 37, Ill.

Deutschman, Jr., Dr. Archie J.
Director of Chemical Research, Spencer Chemical Co., Pittsburg, Kansas.

Dewey, Dr. Davis R. II
Vice President, High Voltage Engineering Corp., 7 University Road, Cambridge, Mass.

Dickey, Dr. Joseph B.
Associate Director of Research, Research Labs., Tennessee Eastman Co., Kingsport, Tenn.

Discher, Dr. Clarence A.
Professor of Pharmaceutical Chem., Rutgers Univ., College of Pharmacy, 1 Lincoln Ave., Newark, New Jersey.

Doolittle, Arthur K.
Ass't Director of Research, Carbide & Carbon Chemicals Co., S. Charleston, West Virginia.

Ednie, Dr. Norman A.
Research Supervisor, Textile Fibers Dept., E. I. duPont de Nemours & Co., Inc., Pioneering Res. Div., Experimental Station, Wilmington, Delaware.

Fetherston, Theodore R.
Chief Chemist, The Griffith Labs, Inc., 37 Empire St., Newark 5, New Jersey.

Klein, Dr. Morton J.
Research Chemist, Dept. of Chem. & Chem. Eng., Armour Research Foundation, 10 W. 35th St., Chicago, Illinois.

Krantz, W. J.
Goodyear Tire & Rubber Co., 1144 East Market St., Akron 16, Ohio.

Parker, Webster L.
Chief Chemist, Los Angeles Testing Lab., 1300 S. Los Angeles St., L. A. 15, Calif.

Post, Alex
Polak's Frutal Works, Inc., 33 Sprague Avenue, Middletown, New York.

MEMBERS

Del Giudice, Frank P.
Research Chemist, Metal Hydrides, Inc., Congress Street, Beverly, Mass.

Oita, Dr. Katashi
Standard Oil Co., Research Dept., P. O. Box 431, Whiting, Indiana.

Rogalski, Leonore G.
Library Supervisor, Universal Oil Products Co., 30 Algonquin Road, Des Plaines, Illinois.

ASSOCIATE

Billig, Franklin A.
Research Chemist, American Potash & Chemical Corp., Whittier Res. Lab., 201 W. Washington Blvd., Whittier, Calif.

RAISED FROM MEMBER TO FELLOW

Kopacki, Adam F.
Chemist, The Linen Thread Co., Inc., 418 Grand St., Paterson, New Jersey.

AIC Activities

Louisiana Chapter

Chairman, Dr. Carl M. Conrad
Chairman elect, C. L. Hoffpauir
Secretary-Treasurer, Mark F. Stansbury, Southern Regional Research Lab., 2100 Robert E. Lee Blvd., New Orleans 19, La.
National Council Representative, Harold A. Levey.

Honors Meeting

On May first, the Chapter will present its Honor Scroll to Harold A. Levey, president, American Product Manufacturing Co., New Orleans, La., in recognition of his many years of professional activities on behalf of chemists and engineers. He is one of the chief organizers of the Louisiana Chapter and has served as its National Council Representative since 1940.

Student medals will also be presented at this meeting to outstanding chemistry and chemical engineering majors in local colleges and universities.

Washington Chapter

President, Paul E. Reichardt

Vice President, John Williams

Treasurer, Albert F. Parks

Secretary, T. Allan Davis, 1016 Urell Place, N.W., Washington 17, D.C.

National Council Representative, Paul E. Reichardt

Honor Award Meeting

The Honor Award will be presented to Dr. Benjamin D. Van Evera, F.A.I.C., co-ordinator of scientific activities, George Washington University, April 24, 1956, at a dinner meeting at the Tally-Ho Restaurant.

Dr. George W. Irving, Jr., deputy administrator, Agriculture Research Service, U.S. Department of Agriculture, will introduce Dr. Van Evera. Dr. Milton Harris of Harris Research laboratories will preside as master of ceremonies.

Honor Scroll To Harold Levey

Harold A. Levey, F.A.I.C., of New Orleans, Louisiana, will receive the Honor Scroll of the Louisiana AIC Chapter at its meeting on May 1, 1956, in recognition of his many years of devoted professional service to chemists and engineers, within and outside the A.I.C. He is an organizer of the Louisiana AIC Chapter and has also served as its National Council representative since 1940.

New Jersey Chapter

Chairman, Dr. Cecil L. Brown

Treasurer, Dr. William R. Sullivan

Secretary, Albert B. Scott, 842 Boulevard, Westfield, N. J.

National Council Representative, Dr. H. W. Mackinney

Arsenal Tour

On March 27th, the Chapter visited Picatinny Arsenal at Dover, N.J. The tour included visits to the nucleonics research laboratory, the packaging laboratory and the Naval Rocket Testing Station. At the latter point the test firing of a large Jato type rocket was observed and the testing facilities examined. After the tour, the group assembled at the Dutton Hotel, Dover, for the Chapter's annual business meeting and dinner. A review of the past year's activities and discussion of plans for the coming year indicated a definite interest in continuing emphasis on professional problems.

Honors Meeting

The Chapter will meet at the Military Park Hotel, Newark, N.J., on May third, to present its Honor Scroll to H. F.

Dr. Van Evera Honored

Dr. Benjamin Van Evera, F.A.I.C., co-ordinator of scientific activities of George Washington University, will receive the Honor Award of the Washington AIC Chapter, at its meeting on April 24, 1956. He is cited for his many years of effective contribution to the field of education.

Wakefield, F.A.I.C., of the Bakelite Company Division of Union Carbide and Carbon Corporation. Mr. Wakefield will be presented by Dr. Foster D. Snell of Foster D. Snell, Inc., New York, N.Y.

Student medals will be presented to outstanding seniors in New Jersey colleges. Dr. Mason W. Gross, provost of Rutgers University, will speak on "Higher Education in New Jersey." Reservations may be made with Dr. A. B. Scott, Merck & Company, Inc., Rahway, N.J. (Rahway 7-1200, Ext. 3197.)

Will You Come

April 6, 1956. Chicago Chapter. "Young Chemists' Meeting," honoring student winners of AIC medals. Speaker, Dr. Ray P. Dinsmore, "Let's Talk About Your First Job." For reservations, H. F. Schwartz, CO 4-8800, Ext. 475.

April 18, 1956. New England Chapter. M.I.T. Faculty Club, Cambridge, Mass. Dinner 6:30 p.m. Award of student medals. Speaker: Prof. H. Christopher Longuet-Higgins of Cambridge University.

April 20, 1956. Ohio Chapter. Annual Meeting. Fort Hayes Hotel, Columbus, Ohio. Morning: Trip to Battelle Memorial Institute and Ohio State University. Informal luncheon. Afternoon: Annual Business Meeting. Address by one of the national AIC officers. Evening: Informal Reception, Annual "Ohio Award Dinner." Presentation of the "Ohio Award" to Dr. Norbert A. Lange, F.A.I.C., vice president, Handbook Publishers, Inc., Sandusky, Ohio.

April 24, 1956. Louisiana Chapter, Meeting jointly with Louisiana Section, American Chemical Society. Chemical Progress Week. Speaker, Dr. Ralph C. Tallman, vice president for research, Lion Oil Co., El Dorado, Arkansas.

April 24, 1956. Washington Chapter. Tally-Ho Restaurant, Washington, D.C. Fellowship hour 6:45 p.m. Dinner 7:15 p.m. Award of Honor Scroll to Dr. Benjamin D. Van Evera, F.A.I.C., Coordinator of Scientific Activities, George Washington University. Introduction, Dr. George W. Irving, Jr., deputy administrator, Agriculture Research Service, USDA. Master of ceremonies, Dr. Milton Harris of Harris Research Laboratories.

April 26, 1956. New York Chapter. Meeting, 7:30 p.m. Knickerbocker Taproom of the Jacob Ruppert Brewery, 1639 Third Ave., New York, N.Y. Subject, "Tactics in Chemical Job-Hunting." Moderator: Carl Setterstrom, Chas. Pfizer & Co. Panel members: Dr. Bruce J. Miller, Union Carbide & Carbon Corp., Gordon Whitcomb, American Cyanamid Co., Dr. Sidney Sussman, Water Service Labs., John Fanning, Fanning Personnel Agency. Free beer and pretzels. College students and young chemists who have not yet found the right job, or others interested, are welcome.

Ohio Award to Dr. Lange

The Ohio AIC Chapter will present the Ohio Award to Dr. Norbert A. Lange, F.A.I.C., vice president, Handbook Publishers, Inc., Sandusky, Ohio, at its annual meeting at the Fort Hayes Hotel, Columbus, Ohio, on April 20, 1956.

April 27, 1956. Chicago Chapter. Speaker, Dr. Lawrence S. Kubie, Psychiatrist and member of staff, Yale University College of Medicine, "Personal Problems of Scientists." For reservations: H. F. Schwartz, Co 4-8800, Ext. 475.

May, 1956. (date to be announced). Washington Chapter. Annual Meeting and election of officers. For information: T. Allan Davis, 1016 Urell Place, N.E., Washington 17, D.C.

May 1, 1956. Louisiana Chapter. Honor Scroll presentation to Harold A. Levey, president, American Product Mfg. Co., New Orleans, La. Awards to outstanding students in area colleges and universities. For information: Mark F. Stansbury, Southern Regional Research Laboratories, 2100 Robert E. Lee Blvd., New Orleans, La.

May 3, 1956. New Jersey Chapter. Military Park Hotel, Newark, N.J. Cocktails, 6 p.m., Dinner 7 p.m. Presentation of Honor Scroll to H. F. Wakefield, F.A.I.C., Bakelite Company, division of Union Carbide & Carbon Corp. Speaker for recipient, Dr. Foster D. Snell, F.A.I.C. of Foster D. Snell, Inc. Student Medal Awards. Speaker: Dr. Mason W. Gross, provost, Rutgers University, "Higher Education in New Jersey." Reservations: Dr. A. B. Scott, Merck & Co., Inc. Rahway, N.J. (Rahway 7-1200, Ext. 3197).

May 9, 1956. The AIC President's Reception to the Officers, National Councilors, Members of the Annual Meeting Committee, and their wives. Hotel Statler, Boston, Mass.

May 9, 1956. National AIC Council and Board of Directors. Dinner Meeting. Statler Hotel, Boston, Mass.

May 10-11, 1956. Annual Meeting. The American Institute of Chemists, Inc. Hotel Statler, Boston, Mass. Theme: "The Chemist Looks at Communication." See ANNUAL MEETING Program, April CHEMIST.

May 25, 1956. Chicago Chapter. Dinner, Engineers Club, Chicago, Ill. Panel discussion, "Chemistry, Men and Money." Moderator: Dr. Archie B. Cramer, F & F Laboratories. Panel members, Albert S. Henick, Quartermaster Food & Container Institute, and Dr. Donald J. O'Connor, Standard Oil Company (Indiana). For Rerservations, H. F. Schwarz, COmmodore 4-8800, Ext. 475.

May 29, 1956. Western Chapter. Dinner, University Club, Los Angeles, Calif. Honor Scroll award to George Parkhurst, senior executive, Standard Oil Co. of California. Presentation of student medals to outstanding group of senior students. For information: T. F. Bewley, Braun Corp., Los Angeles 54, Calif.

June 7, 1956. New York Chapter. Annual Dinner Meeting. Hotel Commodore, New York, N.Y. Presentation of Honor Scroll to Dr. Charles N. Frey, consultant and lecturer, Massachusetts Institute of Technology, Cambridge, Mass.

May 15-17, 1957. Thirty-fourth Annual Meeting. The American Institute of Chemists. Sheraton-Mayflower Hotel, Akron, Ohio.

Opportunities

Doris Eager, M.A.I.C.

Positions Available

Analytical technicians: biochemical laboratory of medical division. Location New York City. Salary dependent upon qualifications. Box 41, THE CHEMIST.

Production chemist or pharmacist with some experience in the pharmaceutical industry. Position in mid-west. Box 43, THE CHEMIST.

Development Chemist with M.S. degree and 1-2 years industrial experience, Dept. Head of Production area: Junior level positions in production; in pharmaceutical company located in metropolitan N.Y. area. Box 45, THE CHEMIST.

Director of Research, take charge of research department totaling approximately 200 employees. Should have experience in organic as well as inorganic. Must be experienced in handling chemical engineers and directing pilot plant work. Age 40-45 years. Salary $18,000 to $20,000, plus fringe benefits. Location Middle west. Box 47, THE CHEMIST.

Chemist or chemical engineer for chemical plant operation, with tremendous opportunity for advancement with growing concern. Up to 45 years of age. Salary commensurate with qualifications. Location Metropolitan N.Y., Box 49, THE CHEMIST.

College graduate (male or female) Chemistry major with some experience in food field desired, will consider recent graduate. Apply Personnel Office, Hearst Magazines, 309 West 56th St., N.Y., N.Y.

Career Opportunities in Research, Engineering, Physical and Biological Sciences. Grades from GS-5 ($5,440) thru GS-15 ($11,610) write for Vacancy Listing: Chemical Corps, Dept. of the Army, Fort Detrick, Frederick, Md.

Chemists Available

Pharmaceutical Chemist. F.A.I.C. Over 20 years experience in pharmaceutical field, ranging thru management, production, compounding, formulation and research. Publications in chemical and medical journals. Member of technical societies. Box 40, THE CHEMIST.

Organic Chemist. D.Sc., F.I.I. Sc., F.R.I.C., 40, Indian, 20 years research (medicinals, chemotherapeuticals, steroids, alkaloids, etc., publications), married, family, hitherto non-resident Research Consultant to California Alkaloid Industry, seeks similar position or research and developmental assignment in India or elsewhere. S. Rajagopalan, 7 Gopalapuram II Street, Madras 6, India.

Chemist, 37, 11 years inorganic industrial experience; batteries, electroplating, glues and gelatines, textile and general physical and chemical commercial testing, seeks position in N.J. and environs. Box 44, THE CHEMIST.

Twenty-eight years diversified chemical experience, including analytical, research, quality control, production development, equipment design, production supervision, technical service and sales promotion. Proven ability to increase production efficiency and lower operating costs. Box 42, THE CHEMIST.

Scholarship: National Starch Products, Inc., plans to finance a new four-year scholarship at Rutgers University, every other year. The first was awarded in 1954, the second in 1956.

New Appointments: At Universal Oil Products Co., Des Plaines, Ill., include: the promotion of Dr. Vladimir Haensel, F.A.I.C., to director of refining research, and Dr. Herman S. Bloch, F.A.I.C., to deputy director of refining research.

Contest: For engineers and designers for the best new applications of thin gauge and/or high-precision tolerance stainless steel strip, announced by Monroe Sherman, president, American Silver Co. First prize is $350.00. Contest closes May 30, 1956. Entry blanks may be obtained from Prize Awards Committee, American Silver Co., Flushing 54, N.Y.

Invitations

To the AIC:

While at the Boston meeting, you will be in the midst of many world-famous landmarks and activities.

While you are here be sure to visit the home of *The Christian Science Monitor*, at One Norway Street. A most cordial welcome awaits you. You will see a modern publishing plant that produces and mails more than 88-million pieces of literature to 120 different lands every year.

Visitors consider the Mapparium an outstanding point of interest. As you walk across the glass bridge you will get a new view of the globe—from the inside.

Come to the Information Desk in the lobby at the main entrance. Everyone is welcome.

—H. Phelps Gates
The Christian Science Monitor

To the Secretary:

As Curator of the Saugus Ironworks Restoration, I would like to suggest that your members consider visiting the unusual industrial museum located just 10 miles north of Boston. Here, in a picturesque site on the banks of the Saugus River, is the reconstructed 300-year-old "birthplace" of America's great iron and steel industry. Restored in authentic detail is the complete Saugus ironworks of 1650. Nearby is the Ironmaster's home and a museum containing many of the interesting relics found while excavating the site . . .

—Frederick A. Bonsal,
Saugus, Mass.

Retired: Henry Fleming Payne, F.A.I.C., after eighteen years with American Cyanamid Company, New York 20, N. Y., to become research professor in charge of instruction and research on organic coatings in the Department of Chemical Engineering at the University of Florida, Gainesville, Florida. He is the author of *Organic Coating Technology*, Vol. I. (John Wiley & Sons.)